

REMARKS

Claims 1-12 are pending in this application. By this Amendment, claims 1-10 are amended to address the objection by the Patent Office and to conform to U.S. claim drafting practice. Claim 1 has also been amended to conform to the Examiner's suggestion during the interview and is supported in the original specification at, for example, page 5, line 35 to page 6, line 2. Claims 11 and 12 are new. Support for new claims 11 and 12 can be found in the original specification at, for example, page 11, lines 13-18. The specification has been amended to address the objection by the Patent Office. No new matter is added.

Applicant appreciates the courtesies shown to Applicant's representative by Examiner Bhat in the October 28, 2008 personal interview. Applicant's separate record of the substance of the interview is incorporated into the following remarks.

In view of foregoing amendments and the following remarks, reconsideration of the application is respectfully requested.

Objection To The Claims

Claims 1-3 and 9-10 have been amended to correct the informalities cited by the Patent Office. Specifically, the reference numerals have been removed. Thus, withdrawal of the objection is respectfully requested.

Objection To The Specification

The specification was objected to for alleged informalities related to the arrangement of the specification. The specification has been amended to address the informalities alleged by the Patent Office. Specifically, sections headings have been added. Thus, withdrawal of the objection is respectfully requested.

35 U.S.C. §102(e) Rejection

Claims 1-10 were rejected under 35 U.S.C. §102(e) as allegedly being anticipated by McMurtry (U.S. Application Publication No. 2006/0037208). Applicant respectfully traverses this rejection.

McMurtry describes a method of scanning an object whereby a first feature is provided for signifying the start/end of a scan, and a second feature is provided to indicate the end of a scan. See the Abstract.

Claims 1-8

The Patent Office alleges that McMurtry describes establishing the orientation of a plane of the sample holder, as required by claim 1. The Patent Office relies on paragraph [0032] of McMurtry as allegedly describing establishing the orientation of a plane of the sample holder. The Patent Office also alleges that McMurtry describes interpreting data from the scan using the orientation of the sample holder, where the orientation is established using data from the scan of the object. Applicant respectfully disagrees.

Claim 1 requires that orientation of the sample holder be established using data from the scan of the object. By establishing the orientation of the sample holder in this manner, the sources of error due to misalignment or a non co-linear sample holder are removed (see page 5, line 17 to page 6, line 2, of the specification). In other words, the present claims 1-8 relate to a method of scanning whereby the orientation of the sample holder is established during a scan. In a conventional scan, where the holder and device are relatively movable along an axis, unless the equipment is precision engineered to ensure that movement is truly along the axis, measurement errors will occur. These errors result from an assumption during subsequent analysis of the data that the movement is perfectly aligned with the axis. Thus, any deviation from alignment would cause skewing of the data points. In the present claims 1-8, orientation information is taken during a scan which is then used to correct the data points,

so if there is any deviation from the true axial direction it will be taken into account and removed from the data set. Therefore, accurate scanning of an object can be accomplished without expensive and time consuming production of a precision engineered device.

McMurtry describes that before starting the scan, the relative positions of the probe and the object are established in the z-direction (see paragraph [0032] of McMurtry). As agreed to during the interview, establishing the relative positions along only the z-direction of the probe and the object does not describe establishing the orientation of a plane of the sample holder. McMurtry therefore clearly can not account for a misaligned sample holder by establishing the orientation of the sample holder, as it does not establish the orientation of the plane of the sample holder. The z-direction is just one direction, and an orientation of the sample holder, as required by claim 1, clearly is not established in McMurtry.

The first feature and second feature of McMurtry do not describe establishing the orientation of a plane of the sample holder using data from the scan of the object, and thus can not remove errors due to misalignment or a non co-linear sample holder. McMurtry describes that the object 27 should be aligned on the center of rotation in order to establish an accurate scan (see paragraph [0038] of McMurtry). Therefore, unless the equipment of McMurtry is precision engineered to ensure that the object 27 is truly aligned along the axis of rotation, measurement errors, as discussed above, will occur. Thus, McMurtry does not describe establishing an orientation of the sample holder, as recited in claim 1.

Furthermore, McMurtry describes that the side surface 26A or the upper surface 29B may provide the first feature for signifying the start of a scan. Once the probe tip has contacted the first feature, the probe movement is conducted according to a predetermined scanning routine. See paragraph [0024] of McMurtry. However, the probe tip contacting the first feature does not establish an orientation of a plane of the sample holder, as required by claim 1.

As agreed to during the interview, nowhere in McMurtry is it described that orientation of the sample holder is established using data from a scan. As discussed above, only the z-direction position of the probe and the object is established. Thus, because McMurtry does not describe that orientation of the sample holder is established using data from a scan, as required by claim 1, withdrawal of the rejection is respectfully requested.

New claim 11 further distinguishes over McMurtry in that it requires the scan of the object and the scan of at least a portion of the sample holder to be conducted as a single scan.

Claims 9 And 10

Claims 9 and 10¹ both require that scanning a datum be performed. The scanning of a datum, as described on page 7, line 20 through page 11, line 18, provides data related to the orientation, for example, of the sample holder. The Patent Office alleges that McMurtry describes, in Fig. 2 and paragraph [0032], the scanning of a datum and interpreting data from the sample scan using data from the datum scan. Applicant respectfully disagrees.

Paragraph [0032] of McMurtry describes that before starting a scan, the relative positions of the probe and object at the end of the scan are established in the z-direction. The probe is then returned to the start position or instructed to find the start of the scan, and scanned until the z-axis location at the end of the scan is reached. As agreed to during the interview, this is different from scanning a datum and interpreting data from the sample scan using data from the datum scan.

Claims 9 and 10 require interpreting data from the sample scan using data from the datum scan. For example, the datum scan may comprise scanning the sample holder for orientation data. See page 6, lines 9-10. The data collected from the datum scan can then be

¹ During the interview, the Examiner requested that Applicant indicate where the specification describes the features of claim 10. At least page 11, lines 13-18 of the specification describe the features of claim 10.

used to interpret (e.g., correct) data relating to the sample to reflect the real plane of the upper surface of the sample holder. See page 6, lines 10-16. McMurtry, on the other hand, describes only finding the relative z-axis positions of the probe and object, and never interprets data from the sample scan using data from a datum scan. McMurtry thus does not describe a datum scan, much less interpreting data from the sample scan using data from the datum scan.

Further, Fig. 2 of McMurtry is a flow diagram of the steps of McMurtry. None of the steps detailed in Fig. 2 relate to the scanning of a datum. Fig. 2 merely relates to the analysis of a set of data that determines when the start and end of the scan has been established, whereas scanning a datum relates to a physical scan, such as a scan of a sample holder. Thus, McMurtry does not describe the scanning of a datum as required by claims 9 and 10.

Similarly, paragraph [0032] of McMurtry describes that a datum stop may be used for the second feature. A datum scan and a datum stop are not the same. A datum scan is a scan that is performed, whereas a datum stop is a command that stops the scan. The datum stop of McMurtry, therefore, determines only when the end of a scan has been reached. Thus, McMurtry here again does not describe the datum scan of claims 9 and 10.

For all of the reasons stated above, McMurtry does not describe all of the features of claims 9 and 10. Withdrawal of the rejection is respectfully requested.

New claim 12 further distinguishes over McMurtry in that it requires the scanning a datum and the scanning a sample to be conducted as a single scan.

Conclusion

For all of the reasons stated above, McMurtry does not describe all of the features of claims 1-12. Withdrawal of the rejection is respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-12 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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